Indian J. Vet. Med. Vol. 44, No. 2, 2024 pp. 12-13

Short Communcation

Blood transfusion in two anaemic dogs with babesiosis

Bhavanam Sudhakara Reddy[*1], Sirigireddy Sivajothi[2] and Gollapalli Nagarjuna[1]*

[1]Department of Veterinary Medicine; [2]Department of Veterinary Parasitology, College of Veterinary Science, Proddatur-516360, Sri Venkateswara Veterinary University, Andhra Pradesh, India.

Abstract

Severe anaemia and babesiosis was confirmed in two dogs; diagnosis was made by through haematological analysis and the detection of *Babesia canis* in stained peripheral blood smears. The affected dogs displayed symptoms such as fever, weakness, icteric mucous membranes, dehydration, elevated body temperature, increased respiratory rate, bounding pulse and presence of ticks. Due to severe anaemia with low packed cell volume (below 10 %) and low haemoglobin levels (below 3 gm%), blood transfusion was performed. After ensuring blood compatibility, each dog received 350 ml of whole blood. Clinical improvement was observed following blood transfusion..

Keywords: Blood transfusion, Dogs, *Babesia,* Anaemia

In veterinary medicine, blood transfusions are considered a critical component of life-saving for animals with anaemia, particularly in cases of acute haemorrhage and haemolysis. Blood transfusions are recommended when the packed cell volume falls below 15% and haemoglobin concentration drops under 5 gm%, as they help restore both oxygen-carrying capacity and oncotic pressure (Cunha *et al.,* 2011). This article describes successful blood transfusion in two dogs with babesiosis.

Two Labrador dogs weighing around 30 kg were presented with symptoms of fever, weakness, and loss of appetite. Clinical examination revealed the dogs were dull, pale to icteric conjunctival mucous membranes, rise in rectal temperature, increased respiratory rate, enlarged popliteal lymph nodes, and bounding pulse with a capillary refill time of 6 seconds. Haematological analysis showed severe anemia with low haemoglobin levels, low packed cell volume, low total erythrocyte counts. Serum biochemistry revealed elevated blood urea nitrogen levels, creatinine and total bilirubin (Table-1). Giemsa-stained blood smears were examined under the oil immersion objective (x100) which confirms the *Babesia canis* organisms within red blood cells (Fig.1). Based on the history of tick exposure, laboratory results, and microscopic examination, the cases were diagnosed as severe anaemia associated with canine babesiosis.

For blood transfusion, an adult healthy dog above 30 kg body weight was selected as donor and haematological indices, blood smear examination for haemoprotozoan was also carried out. Major cross matching was done as per the standard procedure. Total of 350 ml of whole blood was transfused in four hours with close monitoring of the vital signs of the patient for any transfusion reactions. Marked clinical improvement was noticed on the next day with increased food intake and activity. Further dogs were administered doxycycline (@ 5 mg/kg body weight IV for three days followed by oral administration for 28 days), clindamycin (10 mg/kg body eight IV for three days followed by oral administration BID), vitamin B complex (3ml IM OD for 5 days followed by oral multi vitamin syrup), pantoprazole (@ 1mg/kg PO OD for 7 days), prednisolone (@ 1mg/kg PO OD for five days) along with liver tonic containing silymarin for three weeks. Following blood transfusion, clinical improvement was noticed (Table-1).

In this study, the observed clinical signs of fever, anorexia, lethargy, haemoglobinuria, jaundice, and anaemia were consistent with previous findings (Reddy *et al.,* 2014). Whole blood transfusion provided essential coagulation factors, plasma proteins, white blood cells, and platelets, which helped increase the dogs packed cell volume, thereby enhancing their oxygen-carrying capacity and aiding in their recovery from the underlying disease (Abrams-Ogg, 2000). Anju and Vijayakumar (2021) carried out blood transfusion in dogs with clinical babesiosis along with specific therapy to babesia. Blood transfusion provides the reserve of healthy erythrocytes to make up for those destroyed by the reticuloendothelial system and phagocytes. Successful blood transfusion in two dogs with severe babesiosis is placed on record

*Corresponding author: bhavanamvet@gmail.com

https://doi.org/10.56093/ijvm.v44i2.157111

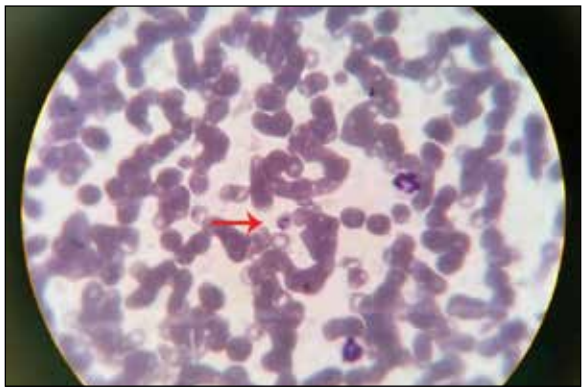

Fig.1. Stained blood smear – Presence of *Babesia canis* organisms (100x)

Table-1: Table showing the haematological changes

	Case-1		Case-2	
	1st Day	**3rd Day**	**1st Day**	**3rd Day**
Haemoglobin (g/dL)	2.2	5.8	1.8	5.2
Packed Cell Volume (%)	10	18	9	16
Red blood cell count (x10^6/µl)	1.22	2.88	1.8	2.76
Total leucocyte count (cells/cumm)	18.31	17.65	20.65	16.08
Blood urea nitrogen (mg/dL)	102	68	88	67
Creatinine (mg/dL)	1.23	1.47	1.36	1.48
Total Bilirubin (mg/dL)	2.81	2.23	2.56	2.01

Acknowledgement

The authors are thankful to the authorities of Sri Venkateswara Veterinary University, Tirupati for providing the facilities to carry out the work.

References

Abrams-Ogg, A. 2000. Practical blood transfusion. In: Day MJ, Mackin A, Littlewood JD, editors. In: BSAVA Manual of canine and feline haematology and transfusion medicine. British Small Animal Association, England, 263-307.

Anju, S. and Vijayakumar, K. (2021). Successful management of *Babesia gibsoni* infection in a dog with Buparvaquone clindamycin combination along with blood transfusion-a case study. *Journal of Indian Veterinary Association Kerala.* **19(2):**144-149.

Cunha, L.F.G., Ferreira A.C.S., and Ferreira R.M.R.F. (2011). Whole blood transfusion in small animals: indications and effects. *Annals of the Brazilian Academy of Sciences.* **83(2):**611-617.

Reddy, B.S., Sivajothi, S., Reddy, LSSV. and Raju, K.G.S. (2014). Clinical and laboratory findings of *Babesia* infection in dogs. *Journal of Parasitic Diseases*. **40(2):**268- 272.

Reddy, B.S., Sivajothi, S. and Swetha, K. (2022). Intravenous clindamycin as a monotherapy in treatment of *Babesia gibsoni* in dogs. *Chem Sci Rev Lett.,* **11 (44):** 475-477.